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Volume 43 APRIL, 1952 Number 4

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The Need for a Truly Generalized Public Health Nursing Program

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THE Canadian community of today is a highly complex organization. In the days of our pioneer ancestors there was a self-sufficiency evident in local life which is lacking today. A hydro failure, a rail strike, or even a car that will not start on a frosty morning throws our plans awry and we are helpless. Our food must be prepared for us by others, our children are deposited at vast school plants in heated buses, we ourselves are outraged if we must make some physical effort that would have been taken for granted a hundred years ago.

It would be foolish to suggest that we have not made progress; our advance in technical affairs has been tremendous. Many of our older citizens were born in an era when there was no telephone, no radio, no automobile, no atomic fission and even no television. Never in the history of mankind has the advance of knowledge been so rapid or so great. In the field of medicine even greater strides have been made. Infant deaths have been strikingly reduced, the life span has been markedly increased, many of the epidemic diseases have either disappeared or have become of relatively small importance. The discovery of the sulfa group of drugs and the development of the whole array of the antibiotics has completely changed the practice of medicine.

However, in our material advance one cannot help but feel that something precious has been lost. There has been a weakening of the family group, a swing away from organized religion, a loss of faith in the value of moral standards. We have become a fast-moving, tense, dissatisfied people. We have gained in physical health, in length of life, in material possessions and in creature comfort, but it is questionable whether we are actually as happy as our ancestors were, even

Presented at the annual meeting of the Burlington (Ontario) Branch of the Victorian Order of Nurses, held on January 31, 1952.

though their life was simple and rugged and lacked many of the things we now consider to be actual necessities to life. But one cannot go backwards. Perhaps the advance has been so swift that we have not had time to adjust ourselves to the great change. Possibly the next generation will see an adjustment which will again balance our lives back to a more even keel.

In no field is the contrast between the two eras more marked than it is in the care of the sick. In the pioneer settlement the care of the sick was a community affair. Rarely was hospital accommodation available, medical attention was hard to obtain, and nursing service on a professional level was non-existent. However, when illness struck, the community rallied. There were always older women who considered the care of the sick their particular responsibility. Often, through hard experience, they were highly skilled. The neighbors made sure that the family wanted for nothing. Obstetrics was done by the women in the community. If a death occurred, the homes of the neighbors were open for those who were left. None of this was done for financial gain. It was simply taken for granted that you did these things for your neighbor and that, in your time of need, your neighbors would look after you. The picture today is completely different. When illness strikes, the care of the sick is a much more impersonal thing. The local community takes little part; it is a matter for highly trained physicians and nurses, for complex modern hospitals, for new wonder-working drugs and for nearly miraculous surgery. No one would wish to go back to the old days but, in our advances, some important but perhaps less tangible things have disappeared. We have lost that wonderful feeling of neighbor for neighbor, the acceptance of our obligation toward our brothers.

In our lifetime, our section of Ontario in particular and, indeed, many other sections of Canada have changed from sparsely settled rural areas to densely populated urban communities. Our whole way of life has been changed. Our housing has, of necessity, become either apartments or small houses. Our cost of living has steadily risen. We have demanded greater and greater service from our municipal and provincial authorities. Many of us have become members of various plans for prepaid medical and hospital care. No longer are babies born at home, no longer is acute illness nursed at home. Larger and larger hospital units are constantly being built, but the demand for services has constantly run ahead of the accommodation available. No longer have we housing available for the aged relative, and more and more institutional care for the aged must be provided. The stress and strain of modern living have apparently resulted in a tremendous increase in the need for hospital care for the mentally ill. Our ever more successful effort to conquer tuberculosis has made huge sanatoria necessary.

The average Canadian is an independent creature, but basically law-abiding. He will do what he is told if he thinks it makes sense, but much of his way of life has developed from experience of his own and of others before him. He is often ahead of the legislation his government is ready to introduce. This philosophy is well illustrated in the development of public health services in Canada.

Health is a provincial responsibility under the British North America Act. The first Public Health Act in Ontario was passed in 1884 and was modelled

upon the British Public Health Act of 1875. This legislation required each municipality to appoint a medical officer of health and a board of health. By 1890, there were 576 local boards and 356 medical officers of health in Ontario. Their prime responsibility was the control of communicable diseases, with some slight attention to environmental sanitation. Through the years, the health departments in the larger centres of population became huge complex organizations and spread far beyond their original obligations. As many of the communicable diseases came under control, they were able to pay attention to newer and often more difficult problems in the community. The whole theme of their efforts was prevention and, in so far as it was possible, they kept out of the field of treatment. The picture in rural areas was greatly different. Here, the local medical officer of health was usually a busy general practitioner paid a very small honorarium and assisted by a sanitary inspector completely untrained and usually holding a variety of other offices such as dog catcher, truant officer, and building inspector. He might or might not be aided by a nurse who usually devoted all her time to the school-age population, but in rare instances might do a generalized public health program. This was all changed in 1943 by an amendment to the Public Health Act whereby the province offered to subsidize rural public health if it were done by specially trained personnel on a full-time basis. This has led to the formation of county health units in Ontario. There are now 26 health units serving over a million people in 408 municipalities. Ontario can well take pride in her steady advance in public health. The legislation in 1938 whereby pasteurization of milk was made compulsory has practically wiped out bovine tuberculosis in our people. Ontario was the first large unit of population in the world to invoke this legislation. Ontario led the way for the world in wiping out diphtheria by immunization. Ontario now has the lowest death rate from tuberculosis in the world.

The activities of a health department of today, whether rural or urban, bear little apparent relationship to the health department of even twenty-five years ago. Added to its original obligations directed toward communicable disease control and environmental sanitation, many new efforts have appeared. School health supervision, maternal, infant and child hygiene, health education, mental hygiene, oral hygiene, nutrition, industrial hygiene, and many others probably occupy more of our effort than our original responsibilities.

Many of these new activities were not entered into by health departments because of requirements of new legislation. Rather, they grew because of a demand from the public and because good health departments realized that these activities were public health in its broadest sense. If we accept Sir Wilson Jameson's definition of public health as anything that affects the health of the public, then certainly these newer activities are worth doing. What the major emphasis of the health department will be in the next generation is a matter for serious thought. So many new unsolved problems confront us. The change of Canada from an agricultural to an industrial nation, the new problems of an aging population, the vast increase in accidents, the problems of alcoholism—all of these and many others are likely to claim our attention in the future. One need never fear boredom in public health. As one problem is conquered, a new one

is bound to arise. Our ever-present aim must be to strive toward the ideal for health as outlined in the preamble to the charter for the World Health Organization where health is defined as not merely the absence of disease and infirmity but also the presence of a complete state of physical, mental and social well-being.

Public health work is a stimulating and inspiring career, but anyone who has worked with an active health department will be impressed with the fact that we are limited in our facilities and sometimes cannot completely solve a problem because of the inadequacy of our training, our staff or our equipment. This is becoming increasingly apparent in the field of welfare. We are constantly confronted with welfare problems with which we are not equipped to deal. Many of us feel that the only solution to this particular problem is the formation of welfare units on the same basis as health units. Only by spreading the cost over large numbers of people and employing specially trained personnel on a full-time basis can this situation be met. Another field in which we keenly feel our deficiencies is in the bedside care of the sick.

By legislation, by precedent, by staff limitation, and by budgetary control, the activities of a health department have been limited to preventive activities, and the field of treatment is entered only when it has a bearing on the primary preventive effort. Thus, home bedside care of the sick has never been an activity of health departments in Canada. However, no one can do public health for any length of time without realizing that unless this bedside care is provided by some agency the work of prevention may come to naught. How many times public health nurses are literally reduced to tears because of the great need they see for home nursing attention and are unable to get anyone to do anything about it? How many times patients must be sent into already overcrowded hospitals for lack of a small amount of nursing care at home? How many old people are forced into institutions because there is no one to give them that little bit of attention at home? How many beds could be released in our overcrowded active treatment hospitals if the post-surgical patient could be sent home just a few days earlier? These and many similar problems are the ones we meet each day and, by ourselves, are unable to solve.

The larger centres of population have been much more fortunate in this regard than have the rural areas and smaller towns. It would be foolish for me to tell this group of the virtues and accomplishments of the voluntary nursing organizations in the home care of the sick. You know full well the service rendered by your own Victorian Order of Nurses, by the St. Elizabeth nurses and by the Red Cross nurses. However, except in rare instances, this service has not been extended to the rural areas of southern Ontario, an area where the need for such service is very great. To the best of my knowledge, there is only one large rural area in Ontario with a bedside nursing service. That is our neighbor, the County of Lincoln. However, this is only a pilot study and its extension to other areas may well be long delayed. I am proud to have had some small share in setting up that service.

We would, I think, all agree that a bedside nursing service should be available to our people in rural as well as in urban areas. The question is how this may

best be accomplished. I would emphasize that any statements I may make and any opinions I may have are my own. They are the result of considerable experience in the field of public health in Canada, in the United States, and in the Armed Forces, and have been gathered both from rural and urban communities. However, they do not represent any official pronouncement; the ideas, whatever they are, are my own.

One must at the outset be perfectly clear as to the fundamental difference between the official health department and the voluntary health agency. The health department is a representative of government, whether it be local, provincial or federal. It is required to exist by law, it is tax-supported, it has obligations to carry out and, in the final analysis, it is accountable to the taxpayer. The very existence of voluntary agencies is, in a sense, an expression of the inadequacy of the official health agency. Many of them have developed out of a need of the people that government has not been willing or able to satisfy. One such voluntary health agency, the Canadian Tuberculosis Association with its various provincial and local branches, might be used as an example. To me, it is the perfect success story of the voluntary health agency. Long before governments were ready to act, public-spirited citizens realized the great problem that tuberculosis presented. They banded together and, by a wonderful effort, had the problem well on its way to solution before the various governmental authorities assumed their rightful responsibilities and are now carrying on from the point which the voluntary agency has reached. I wonder how many people realize that all the sanatoria in Ontario are privately owned by local tuberculosis associations and that it was only in 1938 that the province assumed the cost of the care of these patients? Yet Ontario was the first province to assume this burden. I am quite sure that Ontario would not present the excellent picture she does in tuberculosis control if it had not been for the efforts of the voluntary agency. When the province took over the financial burden of care of the tuberculosis patient from the voluntary agency, it did not mean the end of the non-official effort. Rather, it swung away from the field of treatment into the fields of education and prevention and is still doing a magnificent job. To me, this all makes good sense. Governments can only pass legislation when enough people want those laws. Someone must make the government, through the people, aware of the need to the point where the legislation becomes necessary. That is what happened in the control of tuberculosis. That is the most valuable thing that any voluntary health agency can do: take a problem, attack its solution, and bring it to the attention of enough people so that the government will act to assume its rightful obligations.

The voluntary agency is in a new danger in these days of ever-rising cost of living. People are becoming ever more critical of appeals for funds. More and more people are assuming that their tax dollar should give them these services and are turning a deaf ear to appeals for funds. One need only remember the storm of criticism that arose last year over the fund appeal of a voluntary agency in this province. I predict that fund raising will become increasingly difficult as the years go on.

An organization like your own cannot hope to be self-supporting. You must,

in large measure, depend either on the voluntary gift or upon grants from municipalities. This latter source of funds is not without danger. Another voluntary agency, this time in the field of welfare, might be used as an example. Children's Aid Societies have filled a great need. They are voluntary agencies supported in great measure by municipal and provincial grants. There has already been some criticism in other provinces that an agency whose source of funds is largely from taxation should continue to operate as a private agency. Indeed, in one province, in Saskatchewan, the Children's Aid Society has disappeared and has been replaced by a centrally administered provincial organization. This could happen elsewhere and to other voluntary agencies which have large governmental grants in aid.

There is a trend apparent in the United States to centre the health department in the local hospital. This has many advantages. It ties the preventive and curative efforts much closer together. In one health department in which I worked some years ago in the United States, we maintained a home delivery service as an aid to the practising physician. Granted, the need for this particular service has now disappeared in this part of Ontario. However, it does illustrate a close co-ordination between the two types of service.

I wonder whether that type of co-ordination may not be the possible answer to many of our problems? The demand for home nursing care is probably small now compared to what it is likely to be in the future. I have no opinions for publication on socialized medicine. But I am enough of a realist to know that a tide has already set in that is sweeping us on more and more rapidly toward some form of insurance for prepaid medical and hospital care. Much has already been done on a voluntary basis. Whether the government will step in and make it universal is still a question. However, whether it remains on a voluntary basis or becomes a governmental activity, there is bound to be an ever-increasing demand for home nursing care. When medical and hospital care is available on a prepaid basis, a terrific strain is bound to be placed on the available active treatment beds, and many patients now being admitted to hospital will have to be cared for at home. We would all agree that there is a shortage of trained nursing personnel in Canada. Thus, it behooves us to use those available to the best advantage. Could there be a better, more efficient use made of the public health trained nurse if our efforts were better co-ordinated?

I spoke of the need for better welfare services in rural Ontario. The legislation already exists to make this possible. The province offers to subsidize rural welfare work on the same basis as health units if the same conditions were met, that is, full-time personnel specially trained for the job. It may be a dream, but I can visualize these welfare units actually in existence. Further than that, I can see them co-ordinated in their work with the existing health units. After all, it is sometimes difficult to tell where the public health effort leaves off and the welfare activity begins. Even if we had both welfare and public health co-ordinated, we would still be sadly lacking if some form of bedside nursing care were not available. Your nurses are trained in public health but, in an area such as this, are using primarily their bedside techniques. Our nurses are trained in bedside nursing but are using only their public health skills. Should not both groups be

using all their training to the full? It is extremely unlikely that bedside nursing care under the auspices of the voluntary agency will spread in any great measure to the rural areas. It will only be through the official health agency that this is likely to take place. In our county, approximately 15 to 20% of the people have bedside nursing care available to them through your local branch of the Victorian Order of Nurses. The need of the remainder of the population for this care is just as great as it is locally. The need will grow as we become more and more industrialized. The situation as it exists in Lincoln County is hardly likely to be repeated. In that county, there is good co-operation between the official health agency, the St. Catharines-Lincoln Health Unit, and the voluntary agency, the Victorian Order of Nurses, but they are separate and distinct organizations. Each has its own budget, each receives grants from the municipalities concerned. The Health Unit is established by statute and automatically receives aid from local government. The voluntary agency must justify its existence to council each year in order to receive grants in aid. Municipal tax rates have shown a steady rise and this annual appeal for grants will become increasingly difficult. It may be revolutionary and cutting across all the established practices of nursing, but I think that some combination of the two will eventually be worked out. It is only a few years back when the nurse paid attention only to the school population in her area. Now, she carries out a generalized public health program in all the age groups in the community. Would she not be serving her community even better if she included bedside care? I fully realize that this addition to her work would cut down markedly the number of people she could serve and that such a program could probably not be instituted other than on an experimental basis at present. However, I would certainly like to see it tried out in a unit of population such as is available in Halton County. In our comparatively small area we have every type of living from the most densely settled suburban to the most rural, from industrial towns to dairy farms, from the most modern of schools to the one-room school built many years ago. We have excellent medical coverage and good available hospital accommodation. Most important of all, we have a receptive, intelligent people. I can think of no area where a test could better be carried out.

Few of us can claim to be original in our ideas. Nowhere in Canada has such a combination of official health agency and voluntary association been effected. However, it has been tried out in certain areas in the United States. In the current number of the American Journal of Public Health (January 1952) is a report by Miss Pearl McIver, Chief, Division of Public Health Nursing, of the United States Public Health Service.[1] In this report Miss McIver tells of the experiences of five areas in the United States where a truly generalized public health nursing service is carried on. In each instance, official and voluntary nursing staffs have been pooled, under the general direction of the health officer, but with an annual contract which maintains the governing board of the voluntary group as an advisory committee and insures a true co-operative responsibility.

In an editorial[2] in the same issue of the Journal, the editor sees four advantages of such a completely generalized community nursing service and lists them in order of increasing importance:

1. Material saving in nursing time by avoiding geographical and functional duplication of visits to the same areas.
2. It can be used to further wider and more effective over-all planning for the most effective and intensive use of all available nursing personnel.
3. It deepens and strengthens the vital personal contact between the nurse and the families she serves.
4. It tends to develop in the nurse herself a more fundamental understanding of the "content of a visit" as a potential guiding force in promoting health in the broadest sense for the family as a whole, as well as for its constituent members.

Real, honest, completely generalized public health nursing has been tried in a few areas, and, as Miss McIver has demonstrated, it has not failed. The experience of these communities is worthy of close study by both health officers and directors of voluntary agencies.

I have no expectation that you will all agree with what I have said. As I stressed, these are my own personal opinions. You may receive or reject them, but I do ask you to give them thought. We both face the same problems, we both have the same ultimate purpose. We of the official health agency pay tribute to the great work you are doing, the filling of a real need in the community. May the future bring you even greater success.

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Letter from Great Britain

The Midwife in Great Britain

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Dear Editor:

ONCE MORE I take up my pen to write to you from the Land of Austerity. You will, I hope, recall that this commodity (at least in small measure) is not such "a bad thing after all". But that is not what I set out to write to you about, nor to tell you (as I feel) what a wonderful experience it was for my wife and me to visit you in your own land. Please come (and all you readers) to see me when you, too, cross the Atlantic.

One of the many differences in the health services which I saw in my journeying in the New World (and perhaps the most striking) was the absence of the 'midwife', using the word, as we do in Britain, to imply a medical auxiliary of high professional standing. It will not be inappropriate for me to add her to the portrait gallery with which I have presented you; this is the more so because of the fairly recent addition made to British reports by expert committees, known as "The Working Party Report on Midwives" (1949).

We know little of what happened to women in childbirth over the centuries; it was certainly a perilous affair. Our literature is full of deaths in childbirth; Gibbon, the only survivor of seven children, lost his mother when she was 35. In the 16th century Amboise Paré discovered version. In the 17th century Harvey described the circulation of the blood and the growth of the foetus, and Chamberlen invented forceps (to be kept secret in his family for a hundred years). In the 18th century, Queen Charlotte's, the first maternity home, was established (1739). The 19th century saw the discovery of anaesthetics by Simpson (Queen Victoria being an early beneficiary at the birth of Prince Leopold in 1853); and the discovery of aseptic technique to which Oliver Wendell Holmes, Semmelweiss, Pasteur and Lister contributed. And Dickens began his campaign against the social evil of Mother Gamp (as presented in *Martin Chuzzlewit*) which was to end in the creation of the professional midwife.

We need to glance at Farr's first figure (1839) for deaths in childbirth to understand the national feeling which was behind the developments in midwifery of the 19th and 20th centuries. Death in childbirth is a tragic event, a loss to the family unit which can never be made good and a loss to the nation. When Farr wrote his first letter to the Registrar General he said:

> 1,265 females died in childbed, and the greater proportion of puerperal fever. According to an estimate by Dr. Ferguson, this insidious disease occasions 'seven-eighths of the total

mortality in childbed'. The annual rate of mortality by childbirth, in females, is 3.55 in 10,000, or in females, at a child-bearing age, perhaps 0.8 per 1,000. If the number of births and miscarriages in the period was 290,000, nearly 4 in 1,000 were fatal to the mothers. It is greatly to be regretted that in the present state of medical science 2,500 women die in childbirth every year in England and Wales.

This loss of four mothers in a thousand births continued, or appeared to continue, unchanged for a hundred years, causing much anxiety to those responsible for the nation's health. It is, of course, open to question whether the early figures may not have been an understatement. Munro Kerr (in *Maternal Mortality and Morbidity*) says:

> We would again emphasize the futility of making comparisons between the death rates of the past and the present. There is a progressive advance to exactness in notification and accuracy in classification. This possibly counterbalances any improvement in the maternity service of the country generally, and may explain why there is no apparent lowering in the puerperal death rate.

Nevertheless, it is at least possible that the benefits of gradual improvement in medical science may have been offset in this instance by the increasing frequency of abortions, with all that this implies of risk and danger to maternal life, and also to some extent by the unnecessary use of mechanical aids to delivery (forceps, induction, caesarian section) which carry risks unless in the most able hands (forceps may have been used too freely after the failure to use them which resulted in the death of Princess Charlotte in 1817); the later age of marriage and child birth and the increasing proportion of first babies. The country-wide average of four deaths per thousand live births also masked the wide variations in different parts of the country, variations between two to seven.

Throughout this hundred years in Britain infection always constituted a large section of this annual loss, between one third and two thirds. In the middle of the last century Oliver Wendell Holmes, a medical practitioner in Boston, suggested to his American colleagues that some part of this was due to contagion transferred from the post-mortem to the lying-in room. Holmes was a writer of great force, as his "Autocrat of the Breakfast Table" proves, but he was unable to convince his colleagues of this relationship. In another part of the world (Vienna) simultaneously Semmelweiss observed that the death of mothers in the maternity wards attended by medical students was three times that attended by midwives. He suggested to disbelieving colleagues that medical students were bringing contagion back from the post-mortem room to the wards. When the hospital pathologist pricked his finger in the post-mortem room and died, Semmelweiss was sufficiently convinced to introduce rigid antiseptic methods (the only good antiseptic then known was chloride of lime). When the new procedure had reduced the mortality rate by two-thirds, the value of antisepsis in midwifery was established, twenty years before Lister's antiseptic system was introduced. Semmelweiss, himself, later pricked his finger when at work in the post-mortem room, and followed his friend to the grave. Nevertheless these discoveries, and later the perfections of the Lister techniques for asepsis, did not show themselves in any dramatic change in mortality figures; we can only assume that the use of aseptic techniques did not spread far beyond the hospital wards in which it was

first practised. It was not until a little before World War II that noticeable improvement began; in 1937, the mortality from infections, as well as those from other causes, began to fall sharply to reach the present level of under one per thousand live births. The inference is that the discovery of sulphonamides (prontosil was first used in Queen Charlotte's in 1936) and the many later bacteriostatics had accomplished that which years of effort in other and less direct ways had failed to do. Improving maternal nutrition has probably played an important part.

Early Midwifery and the Origin of the Central Midwives Board. Rules of the C.M.B.

Much of the blame for continued mortality fell upon the unsatisfactory way in which domiciliary midwifery was practised, including the use by doctors of unskilled persons as handywomen. This was a continuation of the function of women in childbirth which must have persisted from the earliest days of man, no doubt even before the discovery of fire, as it does today little altered amongst primitive peoples. Such women in general had no professional training (although we know that in the Middle Ages in England women were licensed for the work by the Church). In the last century, when the social conscience of England began to stir in so many different spheres of our life and with the stimulus of science to alter men's outlook, the unqualified midwife seemed, to enlightened people, to be an evil. Dickens created the character of Mrs. Gamp, who combined laying out the dead and midwifery, much as at one time the art of surgery was combined with that of the barber. When Dickens wrote, we were already behind other countries, for in 1803 France, and later other European countries, regulated the training of midwives. The Obstetrical Society (created in England in the middle of last century) took a first courageous step by setting up a certificate for midwives in 1872; this proved sufficiently attractive to be held by over 5,000 midwives at the end of the century. From 1872 to the first Midwives Act of 1902, a battle was waged for state certification. It is difficult at this distance of time, and perhaps not very profitable, to try to recapture the atmosphere of those days. There can be few in Britain today who would wish to go back to Mother Gamp, and any objections now to training and certification hardly seem valid. Yet the opposition was great both in Parliament and out. The doctors, or rather a section of them, felt that they could do all the midwifery and wished to see the extinction rather than the preservation of this woman. Members of Parliament saw great hardship for the enormous numbers of women who gained some sort of livelihood from an unregulated trade; Bill after Bill went before Parliament, to be thrown out, or to be talked out in committee stages, until at last in 1902 the first Midwives Act was passed.

This Act created the Central Midwives Board which has now operated for half a century, being today composed of 14 members (including at least four general practitioners, four midwives, and one medical officer of health). The Act said that after 1905 no woman not on the register of the Board could lawfully call herself a midwife; that after 1910 no woman could *habitually and for gain* attend women in childbirth unless certified or *under the direction of a doctor.*

The names of women were entered on the Midwives Roll if they held the certificate of the Obstetrical Association and if in bona fide practice for a year before the passing of the Act. The "bona fide" midwife, whose numbers were at first considerable, only slowly disappeared: in 1931 I remember one such in Worcestershire who carried a midwifery bag empty except for a rusty pair of old scissors with which to cut the cord. The duty of supervising midwives under the new Act, one of the new personal health services, was placed upon County Councils and County Borough Councils, in contrast to the strictly sanitary legislation. The task proved to be one of great difficulty, for the existence in large numbers of the bona fide midwife continually obstructed the creation of new standards. But even greater were the difficulties arising from the interpretation of the Act itself, and magistrates were unsympathetic to any rigorous enforcement of a law which could bring hardship to those dependent upon midwifery for a livelihood; they tended to interpret the words 'habitually and for gain' in favour of any offenders brought by the authorities before the petty sessional courts. The phrase 'under the direction of a doctor' was also capable of varying interpretation; and Gamps went on practising under the nominal umbrella of a doctor. Among these pitfalls local authorities had to thread their way with care and circumspection. Little good came from prosecuting women for practising without a certificate of the Central Midwives Board when magistrates refused to convict or, as happened in an early case in Herefordshire, convicted with a nominal fine. Thus the growth of the new profession of midwifery was slow, and most medical officers of health of a generation now past realized that only the passage of time itself and the growth of a new generation of professional women would cure the evils that existed.

In 1929 a special committee examined the details of 5,800 maternal deaths and published valuable reports of their findings (1920 and 1932). In brief, they said that nearly half the deaths were preventable. These reports did much to influence the creation of a municipal midwifery service (Midwives Act, 1936), which has since resulted in a nation-wide service staffed mainly by whole-time midwives. The improvement, particularly in areas inadequately covered by voluntary organisations, was now rapid. Contrary to many pessimistic forecasts, "with extraordinary smoothness a network of salaried midwives spread over the country; in most cases to the great benefit of the midwives themselves who at last knew the meaning of security"; midwifery is now free (National Health Service Act, 1946).

The Central Midwives Board early instituted regulations for practice and for training. Among the many good effects of detailed rules has been the provision of more accurate records in the form of the midwife's register. The rules of the Board, constantly revised and brought up to date over the past 50 years, still govern the work of the midwife; supervision to ensure that the standards are maintained is provided by medical and non-medical supervisors on the staff of the medical officer of health. (A medical supervisor must hold the D.P.H., have held a post as a R.M.O. in a maternity department for not less than six months and have done one year's continuous obstetric work within two years of appointment; a non-medical supervisor must be a certified midwife, S.R.N., with three

years' active midwifery.) One of the original rules required a midwife to advise that a doctor should be sent for "in all cases of abortion, or illness of the patient or child or any abnormality occurring during pregnancy, labour or lying-in". This innovation began medical aid to midwives. It was long resisted, but in 1918 a second Midwives Act made it a duty of the midwife to call in a doctor herself at the cost of the authority, instead of advising as previously the patient's relatives to do so. Most authorities extended medical aid to include, where necessary, a free consultant opinion, and arrangements for admission to hospital. It is still one of the first duties of the midwife to send for medical aid (using a form specially provided). This she must do in all cases of illness of the patient or child, or of any abnormality occurring during pregnancy, labour or lying-in. It is particularly enjoined upon her to send for aid (and to inform the medical officer of health that she has done so) when a rise of temperature to 100.4°F. for twenty-four hours occurs, or recurs within that period, or there is a rise of temperature above 99.4°F. on three successive days; and in all cases of inflammation of, or discharge from, the eyes of an infant. Every midwife must undertake ante-natal supervision of her cases and keep notes.

This supervision of the mother from month to month, week to week, or even in cases of need from day to day, by 17,000 midwives is the surest safeguard against maternal mortality and morbidity for the ¾ million women who yearly have babies in this country. The care includes careful physical examination as to the lie of the baby, urine testing, and in many areas the recording of blood-pressure upon which the early detection of toxaemia largely depends. The midwife must see that every woman has blood taken for a Wassermann test, rhesus examination, and for estimation of iron; she must see that all make application for the additional supplements of milk, orange-juice and other vitamin issues. To obtain the greatest value from continuous ante-natal care, all women are encouraged to "book" a midwife early. All midwives are required to give notice of their intention to practise to the medical officer of health of the area and to notify him of the following circumstances: when artificial feeding is proposed; when a stillbirth has occurred without a doctor being present; when there has been contact with any infection, or with anything which may give rise to a suspicion of infection, or when the midwife is herself liable to be a source of infection; when mother or child has died; when she has assisted to lay out a dead body. As much of the controversy over Mother Gamp centred around the indignity to midwifery (as well as the manifest danger) of combining midwifery with laying out the dead, it is not surprising that this function was forbidden.

The following yearly summary of the work of 400 domiciliary midwives undertaking 11,313 deliveries, solely as midwives, in a population of one and a half millions (West Riding of Yorkshire, 1948) indicates the extent to which these statutory duties of the midwife are in operation: records of sending for medical aid, 5,435; deaths of mother, 8; deaths of child, 117; stillbirths, 239; laying out the dead, 71; liability to be a source of infection, 152; substitution of artificial feeding for breast feeding, 801; puerperal pyrexia, 72; pemphigus neonatorum and other skin disease, 20; erysipelas, 3; scarlet fever, 5; pneumonia, 2; septic abortion, 3; other cases of infection, 45.

A midwife can be suspended from practice (for which she is compensated) if it appears necessary to prevent a spread of infection, and any charges against her of malpractice, negligence, or misconduct must be investigated. Where a midwife is convicted of an offence, her name is liable to be removed by the Central Midwives Board from the Midwives Register.

It has been traditional for domiciliary midwifery in this country to be conducted solely by midwives (approximately 80%). In those cases where a doctor is "booked" to take full charge of the confinement (approximately 20%), the midwife in attendance is termed a "maternity nurse". The National Health Service Act gave every woman the right to a doctor in her confinement free of charge, and there has in consequence been an increase in the number of women who look to a doctor from the outset as distinct from cases where a doctor attends only on call. But the distinction between a midwife and a maternity nurse has not, thereby, been altered, and the term "maternity nurse" is still retained for those cases where the doctor takes full responsibility throughout. The midwife retains her original status in all instances where the doctor is booked but reserves his attention to the statutory minimum (a medical examination at booking and at or about the 36th week; a post-natal examination about six weeks after confinement) and when he gives medical attention in addition or during the confinement only on call; in this capacity the midwife is still required to fulfil the rules of the Central Midwives Board including regular antenatal supervision, even if this duplicates that of the doctor.

Where Should a Baby Be Born? Domiciliary and Institutional Midwifery

We have now to consider the philosophy behind our midwifery services and the reasons which actuate us in establishing a service to meet all needs. The first important problem is where should a baby be born. Should a baby be born in hospital where every modern aid to meet complications can be made available at short notice, or should a birth take place at home where there are no immediate facilities to meet complications? In many countries (including U.S.A.) the answer has been given—in hospital; we in England have continued to advocate home deliveries, partly from innate conservatism, partly for reasons of economy, and partly by an intuitive belief that the atmosphere of the home has much to offer to the newborn babe. We still make the distinction between normal and abnormal midwifery. The birth of a baby is a family event and a physiological process, and not an illness; if the home is suitable and services for help can be provided, there is much to be said for a baby's being born into it, rather than the unnatural circumstances of a hospital or even a maternity home. The psychological atmosphere of the hospital is much less suitable to the mother and baby, and risks of infection are equal if not greater than at home. I well remember a Guy's obstetrician saying "They 'Ronuk' the floors, but streptococci love floor polish." In any healthy community, homes should be fit for babies to be born into, and to secure this should be one of the fundamental aims of the health authority. Nevertheless, for many years to come, an unsatisfactory environment will force mothers to have their babies away from home, and accommodation

must always be reserved for mothers with a medical condition which makes close specialist supervision necessary. Apart from social and medical reasons for which applications for lying-in accommodation in hospitals are now made, many apply on grounds of economy. It is well known that hospital confinements, when the mother and baby are maintained free, are cheaper for the patient; only in the matter of government grant (and that recently) does the mother having a baby at home have any financial advantage over her sister in hospital. In terms of the national exchequer, hospital confinements are more costly. A hospital delivery can cost up to £50, compared with less than £20 for a home delivery; and a maternity bed cannot be built and equipped much under £3,000.

It is, of course, undeniable that untoward events do occur in midwifery; this increases the danger that the public may be brought to believe that hospitals are the best places to have a baby. To meet this and to make home delivery a safe and natural event, the whole midwifery service should be centred upon the home. A well organised service for ante-natal care will reduce to a minimum the occurrence of complications and ensure that all or most women in need of special care will have been removed to hospital. Ante-natal clinics for routine supervision and teaching of all mothers should be supplemented in centres of population by consultant clinics for the few cases of special advice. The use of ante-natal hostels can be most valuable to build up vitality and remove the fatigue of body and mind, in which many of the complications of labour have their origin. Flying squads, backed by the National Blood Transfusion Service, can be held in readiness to take immediate assistance to the home. In these circumstances well trained midwives, backed by the family doctor, can provide a service equal to or better than that in hospital.

Institutional care of midwifery is an important part of good maternity service; there must be beds for abnormal cases, preferably in general hospitals, and for those normal cases which cannot remain at home. For these latter, accommodation has been made available in three different ways: in the maternity ward in a general hospital, which has grown up as part of the service offered by voluntary hospitals, coupled with that provided by the old Poor Law institutions, mainly for the destitute; the Maternity Home established by health authorities under the Maternity and Child Welfare Legislation (usually small, 25–40 beds confined to normal cases and in the charge of a midwife); the Private Nursing Home (also small), combining midwifery with other forms of nursing of the sick. The hospitals and maternity homes are now consolidated under the aegis of Regional Hospital Boards (approximately 100 maternity homes and 500 institutions with maternity beds were transferred); the nursing homes continue outside the National Health Service and are subject to inspection as previously by the Health Authorities (Nursing Homes Registration Act, 1927). The proportion of babies born in hospital is increasing year by year. The present figure is just over 50% as compared with that of 75% officially recommended by the Royal College of Obstetricians and Gynaecologists (which many feel to be too high). About half of the present 50% are delivered in maternity homes, or small nursing homes, where the atmosphere is nearer to that of the home than to that prevailing in hospital.

The Relation of Doctor and Midwife

Another of the most important issues we have to study is the relationship of doctor and midwife. This, as we have seen, has never been static but one of development and change to meet new conditions and needs. We have neither followed the steps of our colleagues in the U.S.A., who have seen no purpose for a midwife and where the midwife exists only in negligible proportions, nor that of our nearer neighbours in Scandinavia, where the midwife has been developed to the practical exclusion of the doctor. We have preferred to allow each profession to evolve in its own natural channels, with doctoring backed by maternity nursing for the few who could afford such a luxury, and midwifery backed by doctoring for the many who could not. This balance has been disturbed by the National Health Service Act, so that it is important to examine now just what each stands for and in what relationship to each other. The advantage of the full primary responsibility resting with the physician lies in the importance which this has had for his position as "family doctor", coupled with his ability to deal direct with abnormalities and emergencies, his greater resources in analgesics and anaesthetics, his greater prestige and the ready access which he has to consultants and hospitals. On the other hand, the present number of family doctors is quite insufficient to handle all births in this country, and with his present heavy commitments it is doubtful whether the doctor can handle any appreciably greater number than the present 20%. The midwife with full primary responsibility can offer the incomparable advantage of time, in marked contrast with the doctor whose time is generally limited and who has conflicting duties; in a long operation of a physiological character the value of this ingredient of time can hardly be overestimated. For the midwife the normal delivery is her life's work and she acquires great skill and experience in its management; her attention is focused on the physiological process and not upon illness nor unduly on possible abnormalities. The midwife today is a teacher in addition to her other functions. She must teach the principles of physiological living in relationship to pregnancy, the details of exercise, clothing, feeding, care of the breasts, the modern approach to relaxation; she must prepare the mother for analgesia and discuss with her the relative merits of this and the alternative of relaxation. Such teaching is fundamental to the creation of healthy motherhood and it equals if not exceeds in value the emphasis which has in recent years been placed upon maternal mortality. Much of it can be done in the home and even more, both for group and individual teaching, at a centre (this is perhaps the greatest advantage of the ante-natal clinic, about which more will be said in the next chapter). In the teaching of breast feeding the midwife is in a position of great advantage; she can counter the progressive decline in breast feeding and counteract the growing belief in the value of dried milk as an alternative. The midwife occupies a position of privilege from which her words have a redoubled value. In some areas clinics for instruction in the preparation for breast feeding have been established under the charge of midwives. "It seems to us," says the working party report upon midwives (1949), "that the doctor and midwife are complementary . . . the doctor must accept the midwife as his fellow practitioner and not attempt either to relegate her to the station of his handmaiden or to displace her unnecessarily

from the position of authority in the patient's eyes. The midwife for her part must not be over-possessive about 'her' patients and must be ready and willing to summon the doctor whenever abnormality, pending or overt, requires his skill . . . the public will not be properly served unless all work together as partners in a team." The report goes on to say that the proper duty of a midwife is to practise normal midwifery, to be expert in normal child-bearing in all its varied aspects and over the whole of pregnancy, delivery and puerperum. The doctor's part is to be her partner in detection and treatment of abnormalities, and the health visitor joins with her in attention to social factors and teaching of health and to share particularly in rearing of the child so that there is a considered transfer of responsibility at the end of the midwife's period of supervision.

The Training of a Midwife

One of the most important duties of the Central Midwives Board has been to lay down standards for training and qualification of midwives. Year by year since its inauguration the quality of training has improved and the professional standard of midwives has advanced. The period of training is one year for State Registered Nurses and two years for other women. It is divided into two parts each with its own examination, a first of six months for State Registered Nurses and eighteen months for others, and a second of six months for everyone. The aim of the first part, spent mostly in hospital, is to provide any pupil midwife, whether she intends to practise or not, with a thorough grounding in the subject under the best available conditions, and that of the second part, spent largely "on the district", is to meet the needs of those actually intending to practise. It has been said that training is constantly under review; like that of the health visitor and the sanitary inspector, and others, it must change and adapt itself to meet new needs. The working party report (1949) on midwives' training recommends a year's course (with one examination at the end), of which the first four months is spent in general principles, the second four months in domiciliary midwifery, and the third four months in abnormal midwifery. The great advantage of this will be that the emphasis on domiciliary midwifery and the preventive aspects of midwifery will precede that of the training in abnormal conditions.

There we must leave this slow process of evolution of the midwife in Britain; it will almost certainly continue. We believe in her as we do in the "family doctor". The future is likely to see the progress of both doctor and midwife in partnership towards a fuller appreciation of the promotion of health and the prevention of disease in the family setting.

Fundamental Dental Data Required for Evaluating the Progress of a Community Dental Health Program

A REVIEW OF THE LITERATURE

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BEFORE DESCRIBING the data necessary for the evaluation of a dental health program, it is suggested that there should be some agreement about the objective to be attained by such programs. How can progress be measured unless the objective is defined? Furthermore, until the progress be defined, the requirements of the dental data necessary for evaluation are unknown.

In C.-E. A. Winslow's oft-quoted definition,[20] public health is described as "the art and science of preventing disease, and prolonging physical and mental efficiency through organized community effort". Rephrased for dental health, this definition might read: "the art and science of preventing dental disease, and prolonging dental efficiency through organized community effort". The objective of a community dental program would therefore appear to be twofold: the prevention of dental disease and the prolonging of dental efficiency.

To evaluate the progress of such programs, data are needed to show, first, if dental disease is being prevented and, second, if dental efficiency is being prolonged.

Further requirements of such data would appear to be (a) that evaluation of the progress of a program within a community over a period of years be possible; (b) that evaluation of comparison of results of programs within different communities be possible; (c) that the processing of data after collection be simple and not too time-consuming, and not require the assistance of additional or specialist staff or equipment.

Historical

The first so-called Dental Health Index appears to be the "Quantitative Caries-Index for the Teeth" described by Morelli in 1924. This index took into consideration the number of existing teeth, the number of carious teeth, and the number of missing teeth.

In 1930 the American Child Health Association published a monograph entitled "Public Health Aspects of Dental Decay in Children".[4] In this study

Presented before the Public Health Dentistry Section at the thirty-ninth annual meeting of the Canadian Public Health Association, held in Montreal May 28–31, 1951, in conjunction with the annual meeting of la Société d'hygiène et de médecine préventive de la province de Québec.

John Oppie McCall, then of the College of Dentistry, New York City, was chief adviser. One of the conclusions is that "In these 3 age groups (10, 11, 12 years) the best measure of liability to the influences causing decay is gained by using the first molars only."

Wisan in 1937, in a paper entitled "Evaluation of Dental Programs for Children",[21] suggested the "Lost Permanent Index". This caused many authors in the dental field to give this subject much serious thought.

No effort will be made to record all so-called dental health indices which have been suggested, nor all methods for the evaluation of dental programs which have been proposed. Rather, I shall attempt to record the trend of thinking and the more important contributions in this field.

To evaluate a dental program, Wisan suggested examination of the age group 12 to 14 years whose permanent teeth normally would be erupted and whose first permanent molars would reflect the results of upwards of 6 years of service or instruction. It was further suggested that there should be recorded solely the number of lost permanent teeth per 100 children, and the percentage of children with lost permanent teeth. For such purposes, inspections, it was claimed, could be accomplished within less than one minute per child. Reliability was claimed, on the basis of a number of dentists examining the same group of children with uniformity of between 85% and 95% (standard deviation of ± 8.6). It was agreed that of necessity teeth requiring extraction would be included in the number of teeth lost.

The Hagerstown Study[6] and the introduction of the D.M.F. index were presented in 1938 by Klein, Palmer and Knutson. The D.M.F. index was described as a means of evaluating the total caries experience of the permanent teeth and the yearly increments thereto. However, it is to be remembered that the D.M.F. index was originally designed to provide an estimation of the dental needs of a school population (2,232 children aged 6–15 years), which was the purpose of the paper in which it was introduced.

The same year, using the data collected by this study, Knutson and Klein[7] examined the previous work of Wisan. Children with D.M.F. teeth with fillings were compared with children without fillings, and it was noted that the children with fillings had a higher D.M.F. rate, yet a lower tooth mortality rate. It was also noted that the first permanent molars in no age group accounted for less than 90% of the total tooth mortality, and for all age groups (6–15 years) accounted for 93% of the tooth mortality among the boys, and 96.2% among the girls. It was therefore recommended that comparison be made by means of periodic counts of missing first permanent molars, or possibly only lower first molars, since these alone accounted for 70% of the tooth mortality. Indeed, since caries is a predominately bi-lateral manifestation, it was further suggested that inspection might be limited to either the first lower left molar or the first lower right molar. For the first time it was noted that since the effects of dental caries are cumulative, the findings should be age-specific. It was further claimed that marked differences occurred between the sexes and the findings should be also sex-specific. In summary it was stated: "Therefore periodic tooth mortality rates may be used as an index of the adequacy and effectiveness of dental care

(fillings) in a specific community, but they should not be considered an index of dental health, since the problem of tooth mortality is only one factor in dental health."

In the following year, April 1939, Turner[19] showed how unreliable such tooth mortality rates could be. One hundred and eighty-four seventh grade children were examined by two dentists. Regarding the total number of teeth requiring extraction (included in tooth mortality rates), only 59% agreement was attained, and for the first permanent molars only 68% agreement. Even for the number of lost first permanent molars only 89% agreement was recorded.

Later in the same year the work of Deatherage, Wilson and Ledgerwood[2] regarding the variability and reliability of D.M.F. rates was reported. Under purposely crude environment and facilities, using the very minimum of equipment and lighting in an endeavour to reproduce the average classroom examination, five dentists each examined a group of 63 children—37 boys between the ages of 5 and 15, and 26 girls between the ages of 6 and 14. However, between five and seven minutes was devoted to the examination of each child. The standard deviation for the total number of carious children was found to be 1.98, and for carious permanent teeth 1.69. In other words, for one-third of the cases the examiners differed by as many as two or more teeth diagnosed as carious.

In August 1942, in a paper entitled "Evaluating Dental Health Programs",[8] Knutson proposed the following items for evaluation: (1) volume of administrative activity, (2) public response to unit volume of administrative activity, (3) volume of clinical dental service dispensed, and (4) effect of a given program on dental health. He suggested that the ratio of filled to carious (D.M.F.) teeth is a sound indication of the completeness of dental service.

But it is to item no. 4 that we wish to pay particular attention. It is noted that findings regarding first permanent molars or D.M.F. rates need not only be classified as age and sex specific rates, but for comparison between two communities a standard population is necessary. For this purpose 100 children are allotted to each of the age groups under comparison. Two cities have approximately the same D.M.F. rates, yet the children of one have twice as many fillings as the children of the other. In addition, it is recorded that tooth mortality rates offer a very useful yardstick for evaluating the progress of a dental health program, but must include the teeth indicated for extraction. It is accepted that by so doing a variable dependent upon diagnosis is introduced, but on the results of two examiners, it is suggested that perhaps this is not too serious. In fact, over 500 children were examined and the tooth mortality index (including teeth indicated for extraction) varied by less than 2%.

Further, in 1944, Knutson[9] established the relationship between the percentage of children of a specific age with one or more carious permanent teeth and the average number of carious permanent teeth. This relationship was shown for five previous studies to follow almost identical curves, of which the general formula was $97 - y = 97\ (0.524)^x$, where y = percentage of children of a specific age with one or more carious permanent teeth, and x = average number of carious permanent teeth per child. The findings of McLaren[13] regarding 7,371 Windsor, Ontario, children follow the same curve.

Additional studies in this field were again submitted by Knutson in 1947,[10,11] when, as a result of his previous work, he suggested methods for the simplified appraisal of dental health programs. Previously, in 1940, detailed examinations of 2,027 children of Nicollet County had been carried out, using mouth miner and explorer and charting the entire mouth. It was estimated that a team of a dentist and a recorder examined approximately 100 children a day, whilst decoding and processing of the records required 3 clerk-months. Observations regarding the simplified procedure were based on its application to the evaluation of the Nicollet County Dental Program, which had then been operating five years. Twenty-three hundred and ten children were examined by teams each consisting of an examiner and a recorder; tongue blade inspections only were carried out; and children handled at the rate of 12.5 per hour. Only the following information was recorded for each child.

1. Name, age, and sex.
2. Are there one or more D.M.F. permanent teeth in the mouth?
3. Are there one or more fillings in permanent teeth?
4. Are there one or more fillings in deciduous teeth?
5. How many permanent teeth are indicated for extraction? (Specify tooth or teeth indicated for extraction.)
6. How many permanent teeth have been extracted? (Specify tooth or teeth extracted.)
7. What is the total number of missing teeth? (Permanent teeth indicated for extraction plus those extracted.)
8. Qualifying remarks.

The collected data of the 2,310 children were processed for analysis in less than 1 clerk-week, and the following findings established for comparison:

1. Percentage of children with one or more D.M.F. permanent teeth, presented by age groups.
2. Average number of missing permanent teeth per child (including those teeth indicated for extraction) presented by age groups.
3. Percentage of children with at least one filled permanent tooth by age groups.
4. Percentage of children with at least one filled deciduous tooth by age groups.

From item 1 above may be calculated, on the basis of Knutson's previous work, the prevalence of dental caries (average D.M.F. per child) for each age group. Items 3 and 4 were suggested as not being fundamental to the technique, but take little time to record and indicate the amount of dental care being provided.

The findings of Jackson[5] in 1950 established that for the evaluation of dental health programs, indices claiming to reflect the degree of carious lesions are of no value. Included therein is also the D.M.F. surface rate. All such indices are shown to be of doubtful value for this purpose.

The greatest exposé of all regarding the validity of D.M.F. findings has been submitted recently by Dunning.[3] In the summary of this work are the following conclusions:

1. Interpretative and other examining errors in D.M.F. studies may be large, easily exceeding a 100 per cent difference between samples.
2. Illustrations of actual data indicate that the standard deviations of observations about the means (averages) in D.M.F. studies are large even when examining errors are reduced

to a minimum. Standard deviations between 4 and 5 D.M.F. per person seem usual in currently available study groups in this country when the individuals are over the age of 12 years.

However, it may also be mentioned that Strusser[16] of the Dental Division of the New York City Health Department, by outlining in written form a technique of examination followed by direct instruction and supervision, attained a high degree of uniformity in a test designed to measure the degree of variation among dental hygienists in their examination technique used to determine the D.M.F. ratio in two groups of patients.

Other methods for estimating the prevalence of dental caries have been devised. Toverud[18] of Norway makes reference to the percentage of caries-affected children, the percentage of caries-affected teeth, and the percentage of caries-affected tooth surfaces. Sognnaes[15] of Harvard describes the percentage of children caries-free and the percentage of children with carious deciduous teeth. May Mellanby[13] has for many years used such an index, namely the percentage of children with a caries-free or almost caries-free dentition (the latter being carefully defined), and in a recent publication supports her use of this index against D.M.F. figures. However, perhaps most of her work has been amongst 5-year-old children. This year Sutherland[17] has published work reporting the use of a new index, the "Percentage of Need Satisfied", being the number of fillings observed against the need for fillings.

Discussion

Dental data required to evaluate the progress of a dental health program are information about the prevention of dental disease and the prolongation of dental efficiency. The majority of dental programs are operating primarily among the children of the community. Since by far the commonest dental disease among that age group is dental caries,[12] to evaluate the prevention of dental disease a caries-prevalence index would appear to be desirable. However, since sound operative dentistry can, in many cases, restore a diseased tooth to normal function, it would appear that a tooth mortality index would inversely reflect on the prolongation of dental efficiency.

Such data or indices should satisfy these criteria: evaluation within a community over a period of years should be possible; evaluation between results from different programs in different communities should be possible; and the collection and processing of the data should be simple and consume as little time as possible.

Of the procedures reviewed above, the simplified appraisal technique of Knutson most closely approximates the ideal. It meets the two basic requirements: it provides both a caries-prevalence index and a tooth-mortality index. Furthermore, its fulfils the last two of the criteria for such data; the collection and processing of the data is simple and could be included in existing dental health programs with little extra time devoted by those administering such programs. This is offered as a fundamental principle, if universal acceptance of any system of evaluation of dental health programs is to be attained.

Let us now examine this technique in the light of the two remaining suggested criteria, namely, of what validity are such data in evaluating the progress of a

dental health program within a specific community over a period of years, and of what validity are such data in the comparison of progress within different communities?

Firstly, let us consider the caries-prevalence index, based in this technique upon the percentage of children with one or more D.M. F. permanent teeth. It must be remembered that the fundamental decision affected by such an index rests upon the diagnosis of the individual examiner, whether there is evidence of a carious lesion in permanent teeth, and in a child of 12 years or over, in any of 28 teeth. In a small community it is likely that all inspections will be carried out by the same examiner, year after year. Unless the examiner or his technique changed over the years, comparison of the data over a period of years would be of value. In larger communities, where the data are collected by several or many examiners, comparison of data over a period of years may have little if any authenticity unless a technique similar to that of Strusser[16] is introduced and the validity of the findings periodically checked. Before attempting to compare the caries-prevalence rates between communities, and assessing any changes in these rates, it must first be proved that the rates are comparable. Further research is indicated to prove whether, by the establishment of written principles of diagnosis of a carious lesion under common diagnostic circumstances, comparable findings may be established. If this is shown not to be possible or practical, a team or teams using such standards would be necessary to visit and examine samples in the various communities under evaluation.

Secondly, let us examine the tooth-mortality index as suggested in the simplified appraisal technique of Knutson. Again this index contains a variable resting upon individual diagnosis. Wisan[21] and Knutson[8] report favourably on the results of very limited research on the degree of uniformity of diagnosis in respect of teeth indicated for extraction, and Turner[19] has reported unfavourably. This index would therefore appear to have the same limitations as those described above for the caries-prevalence index. Research would also appear to be a basic necessity to establish whether or not validity may be obtained by examiners conforming to an arbitrary set of diagnostic criteria regarding teeth indicated for extraction.

Conclusions

Dental data necessary to evaluate a community dental health program are required to provide two indices: an index reflecting the prevention of dental disease, and for this purpose the percentage of children with one or more D.M.F. teeth is suggested; and an index reflecting the prolongation of dental efficiency, and for this purpose a tooth mortality index which includes the teeth indicated for extraction is suggested.

In addition, these data should meet the following requirements: (1) Evaluation of the progress of a program within a community over a period of years should be possible. (2) Evaluation and comparison of results of programs within different communities should be possible. (3) Collection of data should be simple, practical, and not too time-consuming. (4) Processing of data should be simple and not too time-consuming, and should not require the assistance of specialist staff or additional equipment.

The more important contributions to the literature in this field have been reviewed. Of all the procedures proposed, the simplified appraisal technique of Knutson most closely conforms to the above requirements.

The validity of comparison within a large community over a period of years, and between programs within different communities, has been questioned. Both the caries-prevalence index and the tooth-mortality index are suggested as being open to severe criticism in this respect.

Research has been suggested whereby it might be possible to overcome these difficulties. Otherwise, if such comparisons are to be valid, a visiting examining team from a central agency would be necessary.

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Preliminary Observations on Phage Typing of Corynebacterium Diphtheriae

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INTEREST in bacteriophagy has resulted in many attempts to utilize phage for practical purposes. The discovery by Craigie and Yen[1] that phage may be used for the typing of typhoid strains intensified interest in this practical aspect. The success of Fisk[2] in typing strains of staphylococcus by this means and the subsequent use of both typhoid and staphylococcus phage systems has shown the practical value of such methods. Various successful attempts have been made to classify other species of bacteria by means of phage. The work of Keogh, Simmons and Anderson[3] in 1938, of Freeman[4] in 1948, and Toshach[5] in 1949 has indicated the possibility of such methods as an auxiliary means of classifying strains of *C. diphtheriae*. The present study was undertaken to explore this problem of classification in greater detail.

Methods

The isolation, propagation and assay of *C. diphtheriae* phages have been discussed by Toshach.[5] Essentially the same procedures were followed in this investigation.

Adaptation of Phages

The success of this procedure depends upon the chance contact of a mutant phage with a strain which will support its growth and allow the phage to reproduce. In practice this entails adding 1 ml. of an undiluted phage suspension to 1 ml. of a 12-hour culture of the *C. diphtheriae* strain growing in serum broth (nutrient broth plus 10% normal horse serum). Following 24-hour incubation at 37°C. the phage-bacteria mixture is centrifuged at 2500 r.p.m. for one-half hour and the supernatant added to a fresh 12-hour culture of the same strain. An arbitrary limit of 25 such transfers is set. Once the total volume reaches 10 ml., only 5 ml. of the supernatant is added to the subsequent cultures.

Cultures

The cultures examined were obtained through the courtesy of the directors of the Public Health Laboratories of Ontario and Quebec. The majority of the strains were typed as gravis, mitis or intermedius when received. The strain types were checked periodically by sub-culturing into dextrose, maltose, sucrose and starch and plating on blood agar and chocolate tellurite. The medium proposed by Schröer[6] for typing strains of *C. diphtheriae* was used routinely and provided a convenient check on the classical methods of typing the strains. The types can be identified on this medium by differences in colonial size and lustre.

Presented at the nineteenth annual Christmas meeting of the Laboratory Section, Canadian Public Health Association, held in the Royal York Hotel, Toronto, December 17 and 18, 1951.

Results

Four phages were isolated from lysogenic strains by Fisk's method of spotting supernatants of cultures on cultures[2]. These phages were designated 17/15f, 17/15L, 75/84 and 103/104. The host range pattern of these phages differed, on which evidence the phages were assumed to be dissimilar.

By the method of adaptation, 15 phages were obtained out of approximately 200 attempts at adaptation. Toshach was able to obtain two adapted phages by the same means.

The 'host range mutants' so obtained lose their ability to lyse their parent strain and generally exhibit a greatly augmented host range. This can best be illustrated by the following example. From 17/15f, which lysed 10 out of 125 strains, was obtained 17/15f/29 which lysed 37 strains. In turn, from 17/15f/29 was produced 17/15f/29/200, which lysed 117 of 125 strains.

The strains were examined in two groups. The first consisted of 125 strains including 74 used by Toshach. This group was tested with all available phages, with the 19 obtained in this study, the 10 isolated by Toshach, and 1 sent by Dr. Freeman from the University of Washington. The purpose of this was to determine the host range pattern for all the phages tested under the same conditions. The 30 phages were tested undiluted and 122 or 97.6% of the 125 strains were lysed by one or more of the phages. These results are based upon three tests done at intervals of 3 weeks and 5 months. There were no discrepancies between the three repeated tests.

The results indicated a great deal of overlapping of the sensitivity patterns. Many of the phages lysed only a few strains and these strains were generally included in the pattern of one or more of the phages of wider activity. Furthermore, there was no observed correlation between type of *C. diphtheriae* and pattern of phage sensitivity.

The second group consisted of 136 strains, of which 96 were not included in the first group. These 96 strains came from the United States, Leeds (McLeod's strains), Dundee (Tulloch's strains) and every Canadian province, whereas the strains in the first group were obtained in the main from Ontario and Quebec.

This group of 136 strains was tested with 5 phages which had exhibited promising activity in the first tests. The rationale for this procedure was based upon the conception that a phage typing system should encompass all strains with a clear-cut distinction between phage types. The use of 30 phages had not resulted in any such pattern.

The 5 phages were tested undiluted and 68 of the 136 strains were lysed by one or more of the phages. The races of phage were numbered as follows for the purpose of presenting the results: 17/15f/29 (1); 17/15f/29/200 (2); 37/5/30 (3); 17/15f/2 (4); 17/15f/112 (5).

The tests indicated that the strains could be grouped into nine types according to their sensitivity to one or more of the phages. The nine types have been lettered A to I inclusive. The types in terms of the phages involved are listed in Table I below.

TABLE I

Types of C. diphtheriae according to phage sensitivity

Type	*Phage Pattern*
A	1
B	2, 5
C	2
D	3, 4
E	5
F	2, 3, 4, 5
G	4
H	3
I	1, 4, 5

The phage types are distributed among the types of *C. diphtheriae* as shown in Table II. The horizontal total columns give some indication of the incidence of the phage types. The 68 strains not lysed included 11 mitis, 10 gravis and 47 intermedius. Of the unlysed intermedius strains, 27 were from the same source and none of the 27 was lysed by any of the five phages. These strains possibly represent a single unidentified phage type.

TABLE II

Relationship between phage type and "biological type" of C. diphtheriae

Type	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*Total*
Gravis	0	2	0	16	1	4	0	0	0	23
Mitis	6	0	1	1	1	1	1	1	1	13
Intermedius	0	24	7	0	0	1	0	0	0	32
Total	6	26	8	17	2	6	1	1	1	68

Discussion

The typing scheme is of a very tentative and limited nature only. For such a system to be of practical value, all or most of the strains must be included. This will necessitate testing more of the available phages in a similar manner along with the above five. In all probability new host range mutants will have to be developed, since the results with the mutants used to date and the relative ease with which they may be obtained indicate this approach. However, with each additional phage added to the schema, the number of types will increase. The additional phages will also change the phage type pattern. A further modification would possibly result if the phages were used at their critical test dilutions. Studies are now being carried out in an effort to include all strains in a system such as that proposed above.

The failure of 17/15f/29/200 to act on the second group of strains as actively as on the first group is probably indicative of the variation in phage types over widespread areas. The phage was derived from, and propagated on, strains from

Ontario and was largely active on strains from Ontario and Quebec. Such an observation suggests that phage types may be distributed geographically, to a certain extent. Proof of such a contention must await complete classification of strains of *C. diphtheriae.*

Summary

(1) Four phages were isolated from lysogenic strains of *C. diphtheriae.*

(2) Fifteen host range mutants which have a wider range of activity than the parent phages were obtained.

(3) Thirty *C. diphtheriae* phages were tested on 125 strains and 122 or 97.6% of these were lysed by one or more of the phages.

(4) Five phages were tested on 136 strains of which 68 were lysed. A pattern was apparent from these results and a tentative typing scheme was proposed and discussed.

(5) There was no observed correlation between "biological" type of *C. diphtheriae* and the pattern of phage sensitivity.

I wish to express my thanks to Dr. D. T. Fraser and Dr. F. O. Wishart for their continued interest and guidance throughout this work.

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A PIONEER PASSES

ON APRIL 4th a pioneer in public health work in Canada, Charles A. Hodgetts, C.M.G., V.D., M.D., L.R.C.P.(Lond.), D.P.H., passed away at his home in London, Ontario, at the age of ninety-two.

Doctor Hodgetts, who was born in Toronto in 1859, had a long and distinguished career in various fields of health work. He graduated with honours from the Ontario College of Pharmacy in 1878, and subsequently entered medicine, graduating from Victoria University, Toronto, in 1886, with the degree of M.D., C.M. After postgraduate courses in London and Birmingham, he returned to Canada and practised in Toronto. In 1891 he became, on a temporary basis, medical inspector for the Provincial Board of Health of Ontario. Later this position was made permanent and he was given the added duties of medical health officer for the unorganized territory of the province. In 1903 he succeeded Doctor Peter Bryce as chief health officer and secretary of the board. The reports of the board, during the seven years in which he served in these capacities, reveal the extent of the services which he developed. From 1904 to 1909 he was also deputy registrar general for the Province.

In 1909 he was invited to become medical adviser to the Public Health Committee of the Conservation Commission of Canada, and during the ensuing eleven years he gave leadership to this organization. One of his accomplishments was the directing of public attention to the need for better housing and for town planning.

Shortly after the outbreak of World War I, Doctor Hodgetts was asked to act as chief commissioner overseas for the Canadian Red Cross Society, of which he had been one of the founders. He served in this capacity, with the rank of Colonel in the Canadian Army Corps, until April 1918, when he was appointed assistant commissioner of the British Ministry of National Services for Ireland, with headquarters in Dublin. For his war work he was mentioned in despatches and decorated by the governments of Great Britain, Italy, and Belgium.

Doctor Hodgetts contributed much to the development of the first-aid movement in Canada. He was one of the founders of the St. John Ambulance Associa-

tion and was connected with the organization from 1890 to 1932. In 1910 he was made a Knight of Grace of the Order of St. John of Jerusalem and was appointed to the Dominion council and the general executive committee. Later he served as honorary secretary until the outbreak of the war. On his return to Canada, he resumed the duties of honorary secretary, and in 1921 he was appointed director general, a position which he held until his resignation in October 1932.

Doctor Hodgetts was active in the formation of the Canadian Public Health Association, in 1910, and was the first president to serve under the Association's Dominion charter, which was granted in 1912. The Association's second annual meeting was held at the University of Toronto in September of that year. In 1934 Doctor Hodgetts was made an honorary life member of the Association, in recognition of his many contributions to public health and preventive medicine in Canada. Fourteen years later, at the thirty-sixth annual meeting in Vancouver in June 1948, the Association had the privilege of paying tribute to Doctor Hodgetts at a dinner session which he, with Mrs. Hodgetts, was able to attend.

THE ASSOCIATION AND THE FORTHCOMING ANNUAL MEETING

ANNUAL MEETINGS are occasions for taking stock of the progress of public health. Tribute is paid in these pages to the memory of the late Doctor Charles A. Hodgetts, first president under the Association's Dominion charter. Public health workers who may be inclined to believe that progress is unnecessarily slow may take encouragement from the advances that have been made since Doctor Hodgetts' early days. Sixty year ago he was sent by the Ontario Government to alleviate the sufferings of victims of the ravages of diphtheria in the Parry Sound district of Northern Ontario. During a two-month period in winter he travelled 1,100 miles in all, making Commanda his centre.

> In these townships there have been 153 cases of diphtheria and 57 deaths. . . . On the Alsace Road in one settlement a man had buried within the last few months six of his children, and his neighbour had also lost six. In the Township of Machir there were eleven cases of diphtheria in two families. Upon going into one of these houses for the first time at nine o'clock at night I found a family of nine persons, seven of whom were afflicted. The family were poor, there being neither stove nor light of any kind in the room except that of the fireplace. By the light of splinters of wood I was able to discover the nature of the disease. The people of the district much appreciated the help thus given by the Ontario Government, and upon hearing of my arrival many travelled long distances to obtain medicine and seek my aid. It was utterly impossible to keep the patients isolated and much difficulty was experienced even in getting the families in which the disease was to cease associating with others.

Health conditions today are vastly improved from those of 1890. Today there are federal and provincial departments of health, covering Canada, and effective local health services are provided by municipal departments of health and health units. Diphtheria is no longer a problem, and there is no reason for any child to suffer from this disease. Tremendous progress has been made, too, in con-

trolling tuberculosis, and today there are 18,000 beds in sanatoria for the treatment of patients. The problem of tuberculosis is being successfully dealt with from coast to coast; and with the use of drugs now being introduced, tuberculosis may, like diphtheria, be effectively controlled.

In spite of the progress that has been made in providing health services and conquering communicable disease, much remains to be done. At least a third of the population of Canada still lives in communities in which there is no full-time medical officer of health or effective local health services.

Of fundamental importance to the progress of public health and the provision of adequate health services for all parts of Canada is the training of personnel. Qualifications and standards, as well as universities and institutions to provide facilities for training, are essential. The Committee on Professional Education has the responsibility for establishing qualifications on behalf of the Association, and reports are being prepared on the qualifications of veterinarians, dentists, and statisticians in public health work. Over a period of years a subcommittee of the Public Health Nursing Section has considered the qualifications and training of nurses serving in public health and a report will be issued shortly. The Association has given leadership in the field of sanitary inspection and, with the co-operation of the provincial departments of health and the Canadian Institute of Sanitary Inspectors, has established the Certificate in Sanitary Inspection (Canada) as the prerequisite for employment. The contribution which the Association has made in this co-operative undertaking is highly significant, and we look forward to the early provision of additional formal courses to supplement the courses of instruction now being offered in the University of Montreal and by the Department of Health and Public Welfare of Manitoba.

Among the urgent problems facing health departments is the obtaining of physicians with postgraduate training in public health, public health engineers, public health nurses, and public health dentists. Veterinarians, too, have an important part in the public health program, and since postgraduate training for them was provided in 1944 approximately 60 have entered the public health field. At the Winnipeg meeting the Executive Council will review the steps which the Association has taken on behalf of the provincial departments of health to enlist larger numbers of trained personnel in the public health service.

Closely related to the availability of trained personnel is the matter of salaries. Through a survey conducted by the Association and recommendations made by a committee and published last February, the subject has been brought to the attention of employing agencies throughout Canada. The recommendations of minimum basic salaries for various grades and types of public health personnel have been helpful and it is pleasing that public health salaries have been substantially improved in many municipalities.

The Association has re-established its Committee on Social Security. The rapid extension of plans for prepaid medical care and hospitalization in practically all the provinces indicates the public interest in more adequate medical, dental, and nursing care. The application of the knowledge of preventive medicine

in all its aspects is essential to the success of these plans. If they are to be economically possible, health departments must not only maintain their services but must extend them.

The Association also has before it the problems of mental hygiene, arthritis and rheumatism, diabetes, and cancer. The increased span of life brings with it the health problems of the older age groups. This will, year by year, be of increasing importance. Health departments have been giving a major place to maternal and child hygiene; the program for the annual meeting reflects the place which the problems of the adult and the aged must occupy in the programs of progressive health departments.

The Association, in the sessions of the Executive Council, will learn of the substantial progress that has been made in establishing provincial health associations. The holding of the annual meeting of our national organization in various sections of Canada does not provide an opportunity for those engaged in public health work in each of the provinces to meet each year to discuss problems and to review progress. It is encouraging that the Manitoba Public Health Association will be organized and will hold its first session during the annual meeting in Winnipeg in June. Meetings of four other branches will be held during the summer and fall: the Atlantic Public Health Association, serving Nova Scotia and Newfoundland; la Société d'Hygiène et de Médecine Préventive de la Province de Québec; the Ontario Public Health Association; and the Alberta Public Health Association. Steps are being taken for the formation of a New Brunswick-Prince Edward Island Public Health Association, and plans are being made for a British Columbia Public Health Association which would replace the present Institute of Public Health Workers convened by the Provincial Department of Health. Thus health workers in all these provinces will have an opportunity to meet annually in their provincial health associations, which will be integral units of the Canadian Public Health Association.

The annual national meeting brings together the leaders of the public health movement in Canada. On the occasion of each annual meeting, the Association has been privileged, through the co-operation of the Surgeon General of the United States, various State Departments of Health, and the American Public Health Association, to have leading authorities participate in the program and present the progress of their work to Canadian workers. At this year's meeting Dr. W. Palmer Dearing will represent the United States Public Health Service, Miss Ann S. Nyquist the Minnesota Department of Health, and Dr. Gaylord W. Anderson the American Public Health Association. In addition, the members will learn from the Honourable Paul Martin, Minister of National Health and Welfare, the progress that has been made under Canada's program of national health grants. Public health leaders from India, Pakistan, Ceylon, and Indonesia, who will be visiting Canada under the Colombo Plan, will also attend the sessions.

A Message from the President of the Canadian Public Health Association

ONCE again it is time for our annual meeting, which this year is being held in Winnipeg, at the Fort Garry Hotel, on June 16, 17 and 18. It is my privilege to extend a cordial invitation to all who are interested in public health work to attend this convention, the fortieth in the Association's history.

Public health workers have always been leaders in progressive thought and action, and now and in the immediate future we must continue to maintain this position. Evolution in all the fields of health is inevitable, and the time is rapidly approaching when changes of great magnitude must be considered. We have a particular interest in these matters, and unity of purpose and program is essential, not only amongst ourselves, but with our American colleagues in the public health field.

The opportunity provided by our annual meeting as a forum for discussions and exchange of ideas is particularly attractive this year. We are fortunate in having as our guest speakers the leaders of four important bodies in the health field: The Honourable Paul Martin, Minister of National Health and Welfare; Dr. Gaylord W. Anderson, President of the American Public Health Association; Dr. W. Palmer Dearing, Assistant Surgeon General of the United States Public Health Service; and Dr. Harold Orr, President of the Canadian Medical Association. We can look forward to noteworthy contributions from them.

The program committee, as you will see in the following pages, has prepared a widely diversified program geared to the expanding scope of our responsibilities in the public health field. No matter what your special interest may be, you can be assured of stimulating papers and discussion.

We hope you will enjoy Winnipeg too! The Provincial Government and the City Council are co-operating to make your stay a pleasant one. Highlights of the entertainment will be a visit to Lower Fort Garry, a delightful spot on the Red River; and a luncheon in Assiniboine Park as guests of the City. Winnipeg is a friendly city. We will be delighted to welcome you in June.

M. R. ELLIOTT, M.D., D.P.H.
Deputy Minister of Health, Province of Manitoba

Program

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FORTIETH ANNUAL MEETING

OF THE

Canadian Public Health Association

IN CONJUNCTION WITH THE FIRST MEETING OF THE

Manitoba Public Health Association

FORT GARRY HOTEL
WINNIPEG

JUNE 16–18, 1952

DIRECTORY OF SESSIONS

SUNDAY, JUNE 15

8.30 p.m.—Meeting of the Council, Vital and Health Statistics Section.

MONDAY, JUNE 16

8.30 a.m.—Registration. A fee of $2.00 will be charged to cover, in part, the expenses of the meeting. Every delegate is expected to register.

9.30 a.m.—Section Meetings: **Manitoba Medical Health Officers**

Public Health Nursing
Public Health Dentistry } Combined Session
Public Health Nutrition

Vital and Health Statistics

12.30 p.m.—Luncheon. Speaker: The Hon. PAUL MARTIN, Minister of National Health and Welfare.

2.30 p.m.—General Session.

5.00 p.m.—Business Meetings of Sections.

7.30 p.m.—Annual Meeting of the Executive Council.

TUESDAY, JUNE 17

9.00 a.m.—Business Meeting, Dental Public Health Section.

9.30 a.m.—Section Meetings: **Public Health Administration**, **Vital and Health Statistics** } Combined Session
Public Health Education
Sanitation

1.30 p.m.—

2.30 p.m.—Organization Meeting, Manitoba Public Health Association.

2.30 p.m.—Trip to Lower Fort Garry. Transportation will be provided and tea will be served.

5.00 p.m.—Return to City.

7.00 p.m.—Annual Dinner. Speaker: GAYLORD W. ANDERSON, M.D., Dr.P.H., Mayo Professor and Director, School of Public Health, University of Minnesota, and President, American Public Health Association.

WEDNESDAY, JUNE 18

9.30 a.m.—General Session: First Meeting of the Manitoba Public Health Association.

12.30 p.m.—Luncheon at the Pavilion, Assiniboine Park. Members will be guests of the City of Winnipeg. Speaker: HAROLD ORR, M.D., D.P.H., F.R.C.P.(C.), Professor of Dermatology and Syphilology, University of Alberta, and President, Canadian Medical Association.

2.30 p.m.—Section Meetings: **Public Health Administration**, **Epidemiology**, **Public Health Nursing**, **Venereal Disease Control**, **Vital and Health Statistics** } Combined Session

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Tentative Program

SUNDAY, JUNE 15, 8.30 p.m.

VITAL AND HEALTH STATISTICS SECTION

Meeting of the Section Council

MONDAY, JUNE 16, 9.30 a.m.

MANITOBA MEDICAL HEALTH OFFICERS ASSOCIATION

Presiding: F. R. CHOWN, M.D., D.P.H., Director, St. Boniface Local Health Unit.
Program to be announced.

MONDAY, 9.30 a.m.

SECTIONS OF PUBLIC HEALTH NURSING, PUBLIC HEALTH DENTISTRY and PUBLIC HEALTH NUTRITION

(Combined Session)

Presiding:

MISS B. LALIBERTE, M.A., I.H., Chief Nurse, Department of Health, City of Montreal, and Chairman of the Public Health Nursing Section.

GLENN T. MITTON, D.D.S., D.D.P.H., Dental Public Health Department, University of Toronto, and Chairman of the Program Committee, Dental Public Health Section.

E. W. McHENRY, M.A., Ph.D., Professor of Public Health Nutrition, University of Toronto, and Chairman of the Public Health Nutrition Section.

Symposium: **MAKING CHILD CARE WORK**

Why should Tommy suffer from dental disease and abnormalities?
ALLEN O. GRUEBBEL, D.D.S., Secretary, Council on Dental Health, American Dental Association, Chicago.

What can a community program do to improve Tommy's dental health?
A. B. SUTHERLAND, D.D.S., D.D.P.H., Dental Officer, Department of Public Health, Sudbury, Ontario.

Child care in a large city.
Speaker to be announced.

Child care in a rural community.
Speaker to be announced.

What should Tommy eat?
MISS DONNA BAXTER, M.Sc., Senior Nutritionist, Manitoba Department of Health and Public Welfare.

Suppose Tommy won't eat?
Speaker to be announced.

MONDAY, 9.30 a.m.

VITAL AND HEALTH STATISTICS SECTION

Presiding: W. C. N. REED, Director of Vital Statistics, Sasketchewan Department of Public Health, Regina, and Chairman of the Section.

Administration and Methods of Enumeration of the Sickness Survey:
Manitoba—M. R. ELLIOTT, M.D., D.P.H., Deputy Minister of Health, Winnipeg.
Saskatchewan—MURRAY S. ACKER, M.D., D.P.H., Assistant to the Deputy Minister of Public Health, Regina.

Results of Cancer Treatment in Saskatchewan.
T. A. WATSON, M.D., Ch.B., Director of Cancer Services, Saskatchewan Department of Public Health, Regina.

Methods of Making More Practical Use of Vital Statistics in the Field of Maternal and Child Health.
E. COUTURE, M.D., Chief, Maternal and Child Health Division, Department of National Health and Welfare, Ottawa.

MONDAY, 12.30 p.m.

LUNCHEON

Presiding: M. R. ELLIOTT, M.D., D.P.H., Deputy Minister of Health, Province of Manitoba, and President of the Association.

Address: Canada's National Health Program
THE HONOURABLE PAUL MARTIN
Minister of National Health and Welfare, Ottawa.

Mr. Martin will be introduced by the Honourable IVAN SCHULTZ, Minister of Health and Public Welfare, Province of Manitoba.

Tickets will be on sale at the Registration Desk. Early reservations will be desirable, as the accommodation is limited.

MONDAY, 2.30 p.m.

FIRST GENERAL SESSION

Presiding: M. R. ELLIOTT, M.D., D.P.H., Deputy Minister of Health, Province of Manitoba, and President of the Association.

Addresses of Welcome:

The Honourable D. L. CAMPBELL, Premier and President of the Council, Province of Manitoba.

His Worship GARNET COULTER, Mayor of the City of Winnipeg.

Presidential Address: DR. ELLIOTT.

The Administration of Dental Public Health Services.

ALLEN O. GRUEBBEL, D.D.S., Secretary, Council on Dental Health, American Dental Association, Chicago.

Family Health Service—Let's Be Realistic

MISS ANN S. NYQUIST, R.N., Director, Division of Public Health Nursing, Minnesota Department of Health, Minneapolis.

Civil Defence.

K. C. CHARRON, M.D., Chairman, National Civil Defence Health Services Planning Group, Department of National Health and Welfare, Ottawa.

MONDAY, 5.00 p.m.

BUSINESS MEETINGS OF SECTIONS

MONDAY, 7.30 p.m.

ANNUAL MEETING OF THE EXECUTIVE COUNCIL

Presiding: M. R. ELLIOTT, M.D., D.P.H., Deputy Minister of Health, Province of Manitoba, and President of the Association.

TUESDAY, JUNE 17, 9.00 a.m.

DENTAL PUBLIC HEALTH SECTION

Business Meeting

TUESDAY, 9.30 a.m.

SECTIONS OF VITAL AND HEALTH STATISTICS

and

PUBLIC HEALTH ADMINISTRATION

(Combined Session)

Presiding: W. C. N. REED, Director of Vital Statistics, Saskatchewan Department of Public Health, and Chairman of the Vital and Health Statistics Section; and
R. M. CREIGHTON, M.D., D.P.H., Medical Director, Dauphin Health Unit, and Chairman of the Public Health Administration Section.

Symposium: **PUBLIC HEALTH ASPECTS OF AN AGEING POPULATION**

(a) The Changing Pattern of the Canadian Population.
(b) The Medical Aspects.
(c) The Psychological Aspects.
(d) The Mental Hospital Aspect.
(e) The Institutional and Medical Care Aspects.
(f) Home Care.
(g) The Social Welfare Aspects.
(h) Effect on Statistical Measurements.

TUESDAY, 9.30 a.m.

PUBLIC HEALTH EDUCATION SECTION

Presiding: MISS ANNE GRANT, M.A., M.P.H., Health Education Consultant, Canadian Tuberculosis Association, Ottawa, and Chairman of the Section.

An Experiment in Nutrition.
MISS DORIS NOBLE, B.Sc.(H.E.), C.P.H., Nutrition Consultant, British Columbia Department of Health and Welfare, Victoria.

Working with Human Nature.
JULES GILBERT, M.D., D.P.H., Secretary, School of Hygiene, University of Montreal, and Director, Division of Health Education, Quebec Ministry of Health.

A Little Leaven: A Report on the Experience of a City Health Department Employing a Health Educator.
J. L. GAYTON, M.D., D.P.H., Medical Health Officer, Victoria, B.C.

Election of officers for 1952–53.

NOTE: In addition to its Section meeting the Public Health Education Section will hold seminars for those with special interest in any of the following subjects: More Effective Use of Films; Managing Meetings; Making a Speech; Group Techniques and Better Reports.

These seminars are available to anyone registered at the Winnipeg meeting. Time and place will be arranged to suit those who wish to attend.

As the number attending any one seminar is to be limited to ten, it is anticipated that there may be need for two seminars in some subjects. In order that arrangements may be made for additional leaders in advance, those wishing to take part in any of the groups are asked to notify either Mr. Christian Smith, Director of Health Education, Saskatchewan Department of Public Health, Regina, Saskachewan, or Miss Anne Grant, Health Education Consultant, Canadian Tuberculosis Association, 265 Elgin Street, Ottawa, Ontario.

TUESDAY, 9.30 a.m.

SANITATION SECTION

Presiding: E. J. RIGBY, D.V.M., C.S.I.(C.), Chief Health Inspector, Health Department, City of Winnipeg.

Problems in Hot-Air Heating.
E. J. ARGUE, Anthes-Imperial Company Limited, Winnipeg.

Foot-and-Mouth Disease (with film).
T. CHILDS, V.S., D.V.M., Veterinary Director General, Department of Agriculture, Ottawa.

Public Health in Korea.
REGINALD BOWERING, M.Sc., Director, Division of Public Health Engineering, British Columbia Department of Health and Welfare, Victoria.

Atmospheric Pollution.
Speaker to be announced .

Election of officers for 1952–53.

TUESDAY, 1.30 – 2.30 p.m.

MANITOBA PUBLIC HEALTH ASSOCIATION

Organization Meeting

Presiding: M. R. ELLIOTT, M.D., D.P.H., Deputy Minister of Health, Province of Manitoba.

Adoption of Constitution. Election of Officers for 1952–53.

TUESDAY, 2.30 p.m.

VISIT TO LOWER FORT GARRY

Tuesday afternoon will be devoted to a visit to Lower Fort Garry, on the Red River. Complimentary tickets will be available to registered members at the Registration Desk and must be picked up not later than 11.00 a.m. on Tuesday. Transportation to and from the Fort will be provided. Tea will be served and the members will return to the Hotel at approximately 5.30.

TUESDAY, 7.00 p.m.

ANNUAL DINNER

Tickets will be on sale at the Registration Desk until 2.30 p.m. Tuesday. They will not be available at the door.

Presiding: M. R. ELLIOTT, M.D., D.P.H., President of the Association.

Presentation of Honorary Life Membership in the Canadian Public Health Association to
MALCOLM R. BOW, M.D., D.P.H., Deputy Minister of Health, Province of Alberta, and to
MISS ELIZABETH RUSSELL, Reg.N., Director, Public Health Nursing Service, Manitoba Department of Health and Public Welfare.

Address.
GAYLORD W. ANDERSON, M.D., Dr.P.H., Mayo Professor and Director, School of Public Health, University of Minnesota, and President, American Public Health Association.

Installation of ROBERT D. DEFRIES, M.D., D.P.H., Director, School of Hygiene and Connaught Medical Research Laboratories, University of Toronto, as President for 1952–53.

Entertainment.

WEDNESDAY, JUNE 18, 9.30 a.m.

SECOND GENERAL SESSION

First Meeting of the Manitoba Public Health Association

Presiding: The President of the Association.

The Health Officer and Hospital Regionalization.
F. B. ROTH, M.D., D.P.H., Deputy Minister of Public Health, Regina.

Some Observations of Sickness Insurance in Europe.
F. W. JACKSON, M.D., D.P.H., Director of Health Insurance Studies, Department of National Health and Welfare, Ottawa.

Title to be announced.
W. PALMER DEARING, M.D., Assistant Surgeon General, United States Public Health Service, Washington.

The Relation of Poliomyelitis to Immunization.
GAYLORD W. ANDERSON, M.D., Dr.P.H., Mayo Professor and Director, School of Public Health, University of Minnesota, and President, American Public Health Association.

Reports of the Committees on Nominations and Resolutions, Canadian Public Health Association.

WEDNESDAY, 12.30 p.m.

LUNCHEON

(As Guests of the City of Winnipeg)

Pavilion, Assiniboine Park

Complimentary tickets, available to registered delegates (and their wives), may be obtained at the Registration Desk until 5 p.m. on Tuesday.

Presiding: M. S. LOUGHEED, M.D., D.P.H., Medical Health Officer, Health Department, Winnipeg.

Address.

HAROLD ORR, M.D., D.P.H., F.R.C.P.(C.), Edmonton, Professor of Dermatology and Syphilology, University of Alberta, and President, Canadian Medical Association.

WEDNESDAY, 2.30 p.m.

SECTIONS OF PUBLIC HEALTH ADMINISTRATION AND EPIDEMIOLOGY

(Combined Session)

Presiding: R. M. CREIGHTON, M.D., D.P.H., Medical Director, Dauphin Health Unit, and Chairman of the Public Health Administration Section; and
C. R. DONOVAN, M.D., D.P.H., Director of Local Health Services, Manitoba Department of Health and Public Welfare.

Nitrates and Well Water.

WILLIAM WATT, M.B., Ch.B., D.P.H., Medical Director, Neepawa Health Unit, Manitoba.

Accidents and Public Health.

STEWART MURRAY, M.D., D.P.H., Senior Medical Health Officer, Metropolitan Health Committee, Vancouver, B.C.

Public Health and Hospital Laboratory Problems.

JAMES GIBBARD, B.S.A., M.Sc., Chief, Laboratory of Hygiene, Department of National Health and Welfare, Ottawa.

Evaluation Services in Health Administration.

H. A. ANSLEY, M.D., D.P.H., Director of Health Services, Department of National Health and Welfare, Ottawa.

The Epidemiology of Mental Disease.

T. A. PINCOCK, M.D., Provincial Psychiatrist, Province of Manitoba.

WEDNESDAY, 2.30 p.m.

PUBLIC HEALTH NURSING SECTION

Presiding: MISS B. LALIBERTE, M.A., I.H., Chief Nurse, Department of Health, City of Montreal, and Chairman of the Section.

THE PUBLIC HEALTH NURSE IN THE CANADIAN PUBLIC HEALTH ASSOCIATION

Public Health Organization and the Nurse.
MISS LALIBERTE.

Working Together for Public Health.
Speaker to be announced.

The Public Health Association at Home.
Speaker to be announced.

Working on Committees in the Canadian Public Health Association.
Speaker to be announced.

Election of officers for 1952–53.

WEDNESDAY, 2.30 p.m.

SECTION OF VENEREAL DISEASE CONTROL

Presiding: K. J. BACKMAN, M.D., Director, Division of Venereal Disease Control, Manitoba Department of Health and Public Welfare, and Chairman of the Section.

A Review of the Overall Venereal Disease Problem in Canada.
A. F. W. PEART, M.D., D.P.H., Chief, Division of Epidemiology, Department of National Health and Welfare, Ottawa.

Some Considerations in the Public Health Control of Gonorrhoea.
A. JOHN NELSON, M.D., D.P.H., Director of Venereal Disease Control, British Columbia Department of Health and Welfare, Vancouver.

An Interim Report on Findings with the Treponema Immobilization Test.
G. W. MILLER, M.D., D.P.H., Division of Venereal Disease Control, Ontario Department of Health, Toronto.

The Experience of the Department of Health of New Brunswick in the Control and Treatment of Syphilis.
ARTHUR F. CHAISSON, M.D., D.P.H., Department of Health and Social Services, Fredericton.

"Birthright"—a Columbia University educational film.

Election of officers for 1952–53.

WEDNESDAY, 2.30 p.m.

VITAL AND HEALTH STATISTICS SECTION

Presiding: W. C. N. REED, Director of Vital Statistics, Saskatchewan Department of Public Health, Regina, and Chairman of the Section.

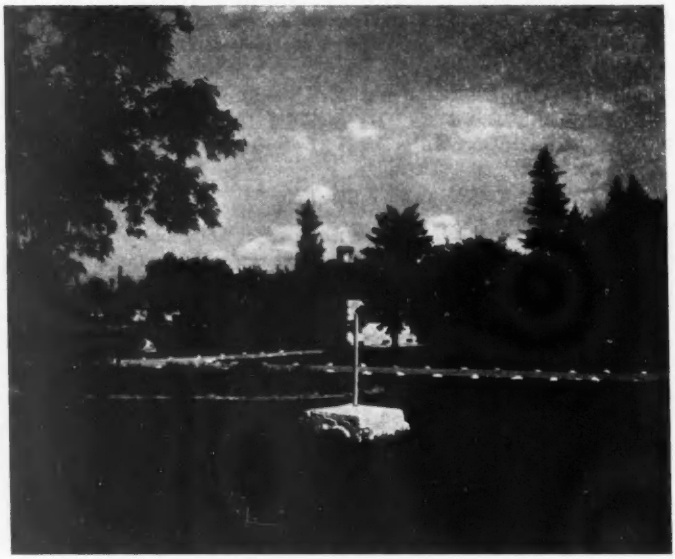
Two papers—subjects and speakers to be announced.

Business meeting and reports of nominations and resolutions committees.

Winnipeg—The Convention City

WINNIPEG, the "Gateway to the Golden West," welcomes members of the Canadian Public Health Association to the fortieth annual meeting, which will take place at the Fort Garry Hotel June 16, 17 and 18.

The last time Winnipeg played host to the association was in 1941 when the population of the city was 300,000. Today, 400,000 citizens share the prosperity of this "Hub of Canada".



Grounds of Lower Fort Garry, showing corner of Governor's residence and some of the historical landmarks mentioned. The picture was taken inside the fort wall which stands in its original state. The wall is a foot thick, is made of Manitoba stone, and completely surrounds buildings and grounds.

Part of this prosperity is due to Winnipeg's geographical position in North America. As the centre of the continent, it has become the centre of many financial, commercial, wholesale, mining, fishing and manufacturing industries.

The largest individually-owned freight-yards in the world are located there and this contributes to the fact that Winnipeg is the world's greatest grain shipping centre. Because low-cost electric power is readily available, many new industries are being developed with an eye to the broad markets of the expanding west.

Now the capital of Manitoba, Winnipeg was incorporated as a city in 1873, although it was first established as a Hudson's Bay trading post (Fort Garry) in 1870. From this tiny trading post built at the junction of the Red and Assiniboine Rivers, the city of Winnipeg grew. The name had its origin in the Cree Indian name given the lake forty miles north . . . "win" (muddy) and "nipee" (water).

Street scene of Winnipeg's famous "Portage and Main" shows the wide, busy thoroughfares and some of the important grain buildings.

Manitoba's colorful history revolves around Winnipeg and the Red River settlers who were the first to make their homes there. One of the province's beauty spots is the original "Lower Fort Garry", on the Trans Canada Highway and the Red River. It was built in 1831-39 by the "Governor and Company of Gentlemen Adventurers of England trading into Hudson's Bay".

The quadrangular-shaped fort covers four and a half acres and within its walls there still stands the original governor's residence, store, and fur warehouses, as well as carefully preserved Indian war canoes and historically famous "York Boats".

Voyageurs and traders brought their furs from the far north, and the Lower Fort was a citadel and a haven for the country's early citizens.

Today the Lower Fort stands on velvety lawn, is quiet, serene and a beautiful river-side background for the Manitoba Motor Club, which has leased the grounds and has undertaken to preserve the historical and natural charm of the 200-year-old fort.

Members of the Association will have an opportunity to see Lower Fort Garry for themselves, as they will be guests at a reception there during the three-day session.

Winnipeg people are proud of their wide, clean streets, their tree-lined driveways, their ninety parks which cover more than 1,100 acres. The largest of these

parks is Assiniboine Park, which consists of 290 acres of natural beauty, complete with a large conservatory of brilliant-hued tropical flowers, a zoo, winding river lanes and a cool, spacious pavilion. Members will be guests of the city at a luncheon during the convention.

Winnipeg's sporting facilities, both for participant and spectator, are characteristic of this vigorous western city. Hockey, curling, basketball are wintertime favorites, and golf, tennis, baseball and football fill the summer program. There are thirteen golf courses, two municipally owned, and more than 20 indoor bowling establishments.

The Legislative Building of the province is situated in the heart of the city, and this imposing structure is one of the most beautiful in the west. The famous "Golden Boy" shines brilliantly in the prairie sunshine from atop the parliamentary dome.

Members will be especially interested in visiting the Provincial Government's Department of Health and Public Welfare, of which the Hon. Ivan Schultz is minister. Dr. Morley R. Elliott, president of the Canadian Public Health Association, is deputy minister. Offices of the department are at 320 Sherbrook Street, although both Mr. Schultz and Dr. Elliott have offices in the Legislative Building.

Headquarters of Winnipeg's Health Department, under the direction of Dr. M. S. Lougheed, are at City Hall.

The University of Manitoba is located in Fort Garry. An extensive remodelling program has added a new engineering building, improvements to a number of residences and buildings, and a new Field House for student activities. A new library is under construction.

Manitoba's Legislative Building, surrounded by acres of lawn and shrubbery, stands majestically in the heart of the city.

An angled view of the Administration Building of the University of Manitoba also shows the Science Building.

Of special interest to members of the Association is the pathological museum in the Manitoba Medical College, which is affiliated with the University of Manitoba. The museum now presents one of the best collections of pathological specimens on the continent.

Winnipeg boasts the largest and finest municipal auditorium in Canada. It houses a museum, art gallery and two concert halls, the largest of which seats more than 4,000 people. The museum, started nearly twenty years ago by voluntary effort, covers natural science, crafts and items of historical interest. Collections of local birds, wild animals and a fine series of local fossils make up the chief museum items.

Across the Red River from Winnipeg is St. Boniface, the "Cathedral City". Its history, turbulent and romantic, goes back to the days of La Verendrye, the first white man to view the junction of the Red and Assiniboine Rivers . . . the first white man to walk the ground of Manitoba's present Capital City.

In 1738, Le Verendrye spent eleven years travelling from Montreal to the site of Winnipeg. Today . . . it takes a few small hours.

EMPLOYMENT SERVICE

Advertisements regarding "positions available" and "personnel available" will be published in from one to three consecutive issues, depending upon the requirements of the agency or person concerned. They are limited to seventy words or less, with a confidential box number if desired. There is no charge for this service to members of the Association. Health agencies are charged a flat rate of $10.00 for the advertisements (up to four consecutive issues) and for the service. The rate for non-members is $5.00. The service includes confidential clearing of information between prospective employer and employee if desired.

Medical Officer of Health: Applications are invited from graduates in medicine who have postgraduate training in public health for the position of Medical Officer of Health of the City of Kingston. Salary will be according to experience and qualifications. Part-time teaching at Queen's University is possible for a suitably qualified applicant. T. J. McKibbin, Secretary, Board of Health, Kingston, Ontario. 1/

Her Majesty's Colonial Research Service: Applications are invited from medical practitioners with qualifications registerable in the United Kingdom for two posts of MEDICAL RESEARCH OFFICER in the VIRUS RESEARCH INSTITUTE, LAGOS, NIGERIA. Experience in virus techniques and/or medical research an advantage. Institute has well-equipped laboratory, and good accommodation is available for married or single officers. Salary according to age and experience. Further information obtainable from Dr. R. S. K. Seeley, Liaison Officer for Canada, United Kingdom Colonial Service, Trinity College, Toronto 5, Canada.

Wanted immediately: Physician to serve as Medical Officer of Health and Director of the Kent County Health Unit, to fill the vacancy created by the recent death of Dr. F. H. Wilson. State qualifications and experience. Applicants should have the qualifications laid down by the Department of Health of Ontario. W. M. Abraham, Secretary-Treasurer, Kent County Board of Health, Kent County Municipal Building, Seventh Street, Chatham, Ontario. 2/

Public Health Nurses for generalized program with City Health Department. Salary $2,400 to $3,000. Annual increment $100. Sick leave plan. Four weeks' vacation. Pension plan and Blue Cross available. Transportation provided. Applications to Dr. A. F. Mackay, Medical Officer of Health, 65 Simcoe Street South, Oshawa, Ontario.

Public Health Nurses, City of Kingston: Due to recent annexation of additional area to the City, public health nurses are required for generalized program with the City of Kingston. Minimum salary $2,200, with allowance for experience, annual increment of $100, cumulative sick leave. Pension plan and Blue Cross Hospital Plan are available if desired. Cars supplied for transportation while on duty. Apply to: Mr. T. J. McKibbin, Secretary of the Board of Health, City Hall, Kingston, Ontario. 3/

Assistant Medical Officer of Health: Applications are invited from graduates in medicine who have had postgraduate training in public health for the position of Assistant Medical Officer of Health for the City of London, Ontario. Salary $6,500. Pension plan. Apply to Dr. C. A. Harris, Medical Officer of Health, 331 South Street, London, Ontario, not later than May 31st.